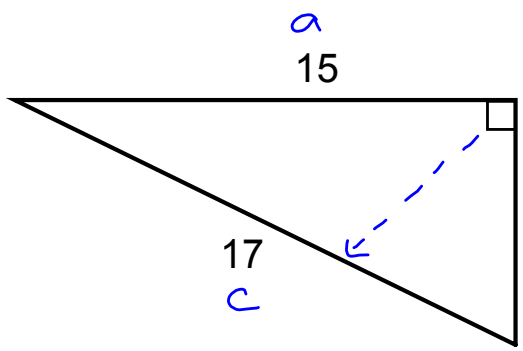
DO NOW

Find the value of x



$a^2 + b^2 = c^2$

$15^2 + x^2 = 17^2$

$225 + x^2 = 289$

$-225 \quad -225$

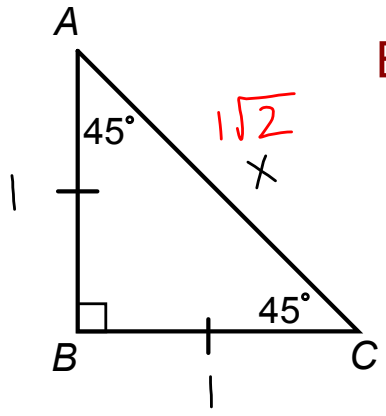
$\sqrt{x^2} = \sqrt{64}$

$x = 8$

Mar 7-10:24 AM

Special Right Triangles

45°- 45°- 90° is an Isosceles Right Triangle



EX: If *AB* = 1, find *AC*.

$1^2 + 1^2 = x^2$

$1 + 1 = x^2$

$\sqrt{2} = \sqrt{x^2}$

$1\sqrt{2} = x$

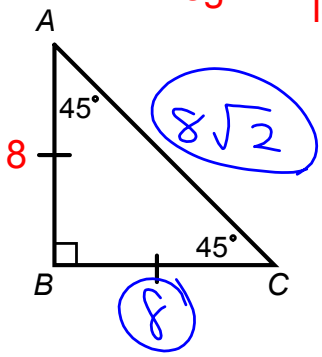
Mar 7-10:37 AM

45°- 45°- 90° Triangle

If one leg is known, then the hypotenuse = leg $\sqrt{2}$

L, L, $L\sqrt{2}$

leg leg hypotenuse

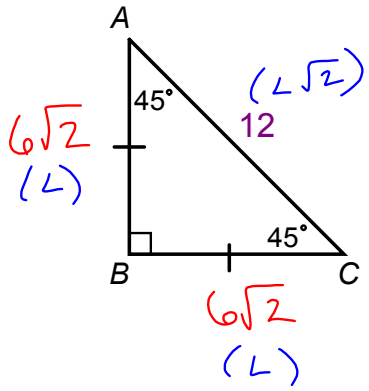


Mar 7-10:48 AM

45°- 45°- 90° Triangle

If the hypotenuse is known, then:

each leg = $\frac{1}{2}$ (hypotenuse) $\sqrt{2}$



$\frac{12}{\sqrt{2}} = \frac{L \cdot \sqrt{2}}{\sqrt{2}}$

$\frac{\sqrt{2}}{\sqrt{2}} \cdot \frac{12}{\sqrt{2}} = L$

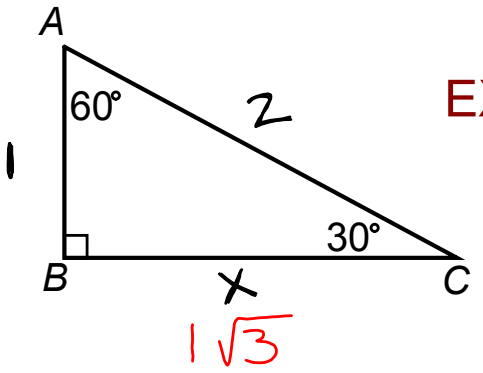
$\frac{12\sqrt{2}}{\sqrt{4}} = L$

$\frac{12\sqrt{2}}{2}$

$6\sqrt{2} = L$

Mar 7-10:48 AM

30°- 60°- 90° Triangle



EX: If $AB = 1$ and $AC = 2$, find BC.

$1^2 + x^2 = 2^2$

$1 + x^2 = 4$

$-1 \quad -1$

$\sqrt{x^2} = \sqrt{3}$

$x = \sqrt{3}$

Mar 7-10:44 AM

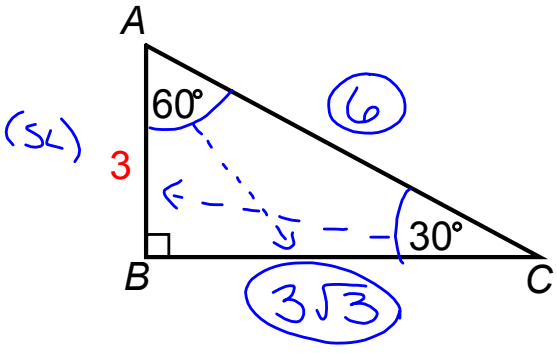
30°- 60°- 90° Triangle

Short leg (opposite 30° angle) $= \frac{1}{2}$(hyp)

Long leg (opposite 60° angle) $= \frac{1}{2}$(hyp)$\sqrt{3}$

SL, $SL\sqrt{3}$, $2(SL)$

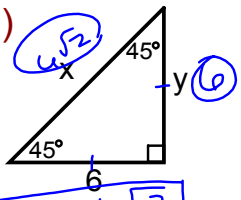
short leg, long leg, hypotenuse



Mar 7-11:00 AM

Use the special right triangle patterns to find the missing sides.

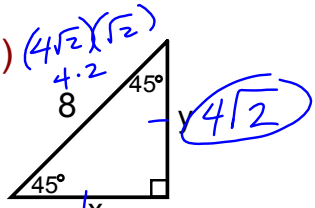
1)



$x = 6\sqrt{2}$

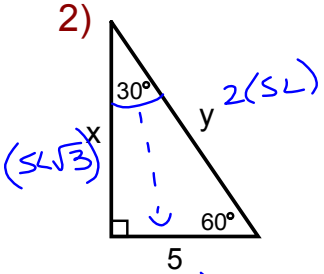
$y = 6$

3)



$4\sqrt{2}$

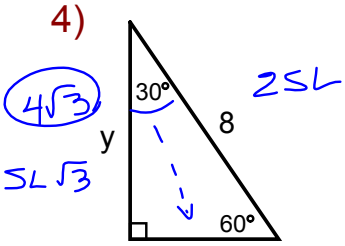
2)



$x = 5\sqrt{3}$

$y = 10$

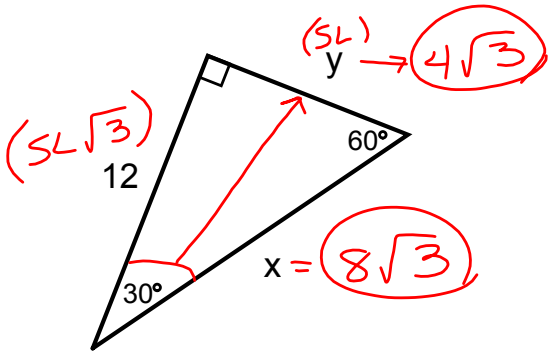
4)



$4\sqrt{3}$

Mar 7-11:07 AM

Use the special right triangle patterns to find the missing sides.



$y = 4\sqrt{3}$

$x = 8\sqrt{3}$

$\frac{SL\cdot\sqrt{3}}{\sqrt{3}} = \frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$SL = \frac{12\sqrt{3}}{3}$

$SL = 4\sqrt{3}$

Jan 14-9:32 AM